AGRICULTURAL ENGINEERING

CURRENT LITERATURE

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ENGINEERING

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Agricultural Engineering.

International directory of agricultural engineering institutions. Rome, Institut international d'agriculture, 1934. 185p.

Opportunities of agricultural engineer for aiding recovery. By R. W. Trullinger. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 379-380, 393. His responsibility is to develop mechanical methods and equipment which will utilize land in most efficient, economical and profitable production of commodities which it is adapted.

System of classification for agricultural engineering material. By S. von Frauendorfer. International Institute of Agriculture, Monthly Bulletin of Agricultural Science and Practice. v. 25, no. 9. September, 1934. p. 393-411. Classification system of agricultural engineering set out below forms part of wider and more complex system, embracing all branches of agriculture. System is intended to form basis for bibliography of agriculture, which is to include systematic subdivision, not only of technical literature in general but also of contents of periodicals, and must therefore cover very wide and important range of material.

Agriculture.

Adjustment program to follow 1935. By H. R. Tolley. 1934. 11p. Mimeographed. U. S. Department of Agriculture. Address before Extension Section of the Association of Land Grant Colleges and Universities, Washington, D. C., November 19, 1934.

Agricultural adjustment and country life. By H. R. Tolley. 1934. 7p. Mimeographed. U. S. Department of Agriculture. Address before American Country Life Association, Washington, D. C., November 17, 1934.

Agricultural outlook for 1935. Prepared by the staff of the Bureau of Agricultural Economics, assisted by representatives of the Agricultural Adjustment Administration, Extension Service, and State agricultural colleges and extension services. 1934. 132p. U. S. Department of Agriculture. Miscellaneous Publication No. 215.

Agricultural planning in a democracy. By H. R. Tolley. 1934. 9p. Mimeographed. U. S. Department of Agriculture. Address before American Association of Land Grant Colleges and Universities, Washington, D. C. November 20, 1934.

Agriculture. (Cont'd)

Agriculture needs world markets. By Asher Hobson. Successful Farming. v. 32, no. 11. November, 1934. p. 8-9, 50-53. Even our present farm system depends upon selling the produce of every sixth acre abroad. If these outlets are shut off by national self sufficiency agriculture will suffer heavily.

Factors affecting farm credit. Madison, Wisconsin. Agricultural Commission, American Bankers' Association, 1934. 32p. Contains pointers on establishing credit in advance of needs, suggestions for utilizing credit facilities, and illustrations of types of farm investments that help maintain credit rating.

Farm program for America. By M. L. Wilson. Montana Farmer. v. 22, no.3. October 1, 1934. p. 3, 7. Essentially there are three things which agriculture in this nation must work towards, working as a unit, not in blind regimentation, but as an intelligent, co-operating group. First is towards supplying for American agriculture's effective market goods and materials which can be sold at fair prices, as opposed to piling up surpluses and selling at starvation prices. Secondily, cost of production must be brought down steadily by putting land to its best uses, by employing best tools and methods which science makes available, and by continuously improving quality and variety of products. Third, by steadfastly maintaining alertness with respect to distribution of products of American agriculture, remembering that one end and purpose of production is consumption, that consumer can best be protected not by low prices at farm, but by lowest possible prices where consumer does his buying when farm product has reached form where it is ready for consumer.

Farmer's part in progress. By Chester C. Davis. Bureau Farmer. v. 9, no. 13. September, 1934. p. 7-10.

Foreign trade and agriculture. By George N. Peek. 1934. 12p. Mimeographed. U. S. Department of Agriculture. Address before Association of Land-Grant Colleges and Universities, Washington, D. C. November 20, 1934.

Give research a chance. By Henry A. Wallace. Country Gentleman. v.104, no. 9. September, 1934. p. 5-6, 34. Our research in agriculture along other than economic lines is becoming damaged to degree that has already crippled it in attacking any of larger problems.

Land policies and agricultural welfare. By M.L. Wilson. 1934. 13p. Mimeographed. U. S. Department of Agriculture. Address before the National Grange, Hartford, Connecticut, November 15.

"Let us have this job!" plead the chemists. By Wheeler McMillan. Country Home. v. 58, no. 12. December, 1934. p. 7-9, 35, 37. Scientists believe they can outdo lawmakers in race to enrich farmers.

Mortgage loan through Farm Credit Administration. By Albert S. Goss. 1934. 16p. U. S. Farm Credit Administration. Address before American Titlemen's Association, Miami, Fla., October, 1934.

Our changing agriculture served by science. 1934, 128p. Wisconsin.

Agriculture. (Cont'd)

Agricultural Experiment Station. Bulletin no. 428. Annual report of director, 1932-1933.

Six decades of corn improvement and the future outlook. By Henry A. Wallace. 1934. 10p. Mimeographed. U. S. Department of Agriculture. Address at Iowa State College, Ames, Iowa.

United States census of agriculture, January, 1935. 1934. 11p. U. S. Bureau of the Census.

Wisconsin farming under adjustment. 1934. 39p. Wisconsin. College of Agriculture. Extension Service. Circular no. 269.

Air Conditioning.

Ventilating and heating of modern farm building group. Part 1. By Alfred J. Offner. Heating and Ventilating. v. 31, no. 10. October, 1934. p. 17-20.

Ventilating and heating of modern farm building group. By Alfred J. Offner. Heating and Ventilating. v. 31, no. 11. November, 1934. p. 43-45. Conclusions.

You can keep cool as a cucumber all summer long. By Wendell Holmes. Better Homes and Gardens. v. 12, no. 11. July, 1934. p. 18-19, 30. Some suggestions on how to make your home more comfortable and healthful throughout hot months as well as during cool seasons.

Associations.

A. S. A. E. Power and Machinery Division meeting. Farm Implement News. v. 55, no. 24. November 22, 1934. p. 8. In Chicago, December 3 and 4. One of features of A.S.A.E. meeting will be symposium on 1934 developments in application of pneumatic tires to tractors and other farm equipment.

Meeting program. American Society of Agricultural Engineering - Power and Machinery Division. The Stevens, Chicago, Illinois. December 3 and 4 1934. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 400.

Building Construction.

Bureau will study sizes of building materials. Industrial Standardization and Commercial Standards Monthly. v. 5, no. 11. November, 1934. p. 247-248. Involves study of sizes of manufactured building units, and fostering of movement to bring about better coordination in abutting units.

Correct wood construction. American Builder and Building Age. v. 56, no. 11. November, 1934. p. 36-37. Prepared by Arkansas Soft Pine Bureau.

Earthquake and wind design: suggested rationalization. By Jacob J. Creskoff. Engineering News Record. v. 113, no. 16. October 18, 1934. p. 553-556. Present practice of ignoring building walls and slabs con-

Building Construction. (Cont'd)

trary to common sense. Simple analysis possible which takes them into account and recognizes dynamic character of forces.

Easy ascent and beauty, - or a back-breaking nuisance. By Harold Donaldson Eberlein. Better Homes and Gardens. v. 12, no. 11. July, 1934. p. 20-21, 46-47. Criterion of good stair is measure of comfort and convenience it affords those who have to use it. If stair assures comfort in use - the first essential - looks may safely be left to take care of themselves. Ninety-nine times out of hundred if stair is comfortable it will be good-looking also, regardless of any decorative means that may be used to grace it. Comfort and rightness of stair depend entirely on its measurements. Every time you go up the effort you exert to lift your body upwards and forwards is practical demonstration of law of physics; vertical height and horizontal distance forward to be traversed, taken together, give diagonal or angle of ascent which determines in foot-pounds effort made by person ascending. Steeper this grade or angle of ascent, greater the exertion in rising given number of feet in proportion to distance traversed forward at same time. If energy or effort, measured in foot-pounds, is distributed over greater distance forward, ascent is more gradual and demands less concentrated exertion.

Essential properties of mortars for masonry units. By L. A. Palmer. Brick & Clay Record. v. 85, no. 5. November, 1934. p. 161, 164-165, 168. These properties, listed in order of their importance are: 1. Workability (water retaining capacity being controlling factor.) 2. Adhesiveness or bonding power, high ratio of tensile bond strength to tensile mortar strength. 3. Low volume changes subsequent to hardening. 4. Maximum amount of strength obtainable without any material sacrifice of plasticity, bonding power and low volume changes after hardening. 5. Extensibility, the property of undergoing relatively high degree of stretching without rupture. 6. Freedom from soluble matter that contributes to efflorescence, staining, etc. 7. Fair degree of porosity.

Experimental results with rammed earth construction. By J. R. McCalmont. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 387.

Some common construction errors and how to prevent them. By Oscar G. Knecht. American Builder and Building Age. v. 56, no. 11. November, 1934. p.34, 57.

Study of the properties of mortars and bricks and their relation to bond. By L. A. Palmer and D. A. Parsons. 1934. 609-644p. U. S. Bureau of Standards. Research paper 683. Part of Bureau of Standards. Journal of Research. v. 12, May, 1934.

Wrought metalwork, 9: Grilles. By Bernard Heatherley. Pencil Points. v. 15, no. 9. September, 1934. p. 453-455.

Cotton and Cotton Ginning.

Care and maintenance of gins at close of season. By Charles A. Bennett. Cotton Ginners' Journal. v. 6, no. 2. November, 1934. p. 5-6, 16.

Cotton and Cotton Ginning. (Cont'd)

Quality of cotton production in New Mexico, 1928-1932. By James R. Kennedy and John C. Overpeck. 1934. 27p. New Mexico. Agricultural Experiment Station. Bulletin no. 225.

Culverts.

Capacity of creosoted-wood culverts studied. By F. T. Mavis. Engineering News Record. v. 113, no. 16. October 18, 1934. p. 486-487. Laboratory investigation shows round entrance gives greater capacity than square entrance for given head. Roughness factors determined.

Dams.

Dam stresses and strains studied by slice models. By J. L. Savage. Engineering News Record. v. 113, no. 23. December 6, 1934. p. 720-723. Laboratory tests of maximum cantilever sections of Boulder, Norris and Grand Coulee dams indicate that this type of model has distinct usefulness as adjunct to design.

Fort Peck dam - An $84,200,000 aid to navigation on the Missouri river. Engineering News Record. v. 113, no. 22. November 29, 1934. p. 693-698. Development of Missouri river for vessels of 9-ft. draft up to Sioux City, Iowa, to be advanced by construction of Fort Peck Reservoir. Some power to be generated. Flood benefits slight. Large amount of employment is created.

Parker dam being built for Metropolitan water district. Engineering News-Record. v. 113, no. 22. November 29, 1934. p. 692. Parker dam is unusual in that most of its 320-ft. height is to be below present bottom of river.

Drainage.

Proper spacing and depth of tile drains determined by the physical properties of the soil. By J. H. Neal. 1934. 62p. Minnesota. Agricultural Experiment Station. Technical bulletin no. 101.

Role of field drains in removing excess water from soil. 1. Some observations on rates of flow from outfalls. By H. H. Nicholson. Journal of Agricultural Science. v. 24, part 3. July, 1934. p. 349-367. Outfall records of tile-drain systems. Water table movements. Factors influencing percolation. Behavior of mole-drain systems on heavy land. Comparison of behavior of grass and arable land. Comparisons between tile and mole-systems. Effect of variations in treatment of land.

Electricity in the Home.

Electric light in the farm-house. Rural Electrification and Electro-Farming. v. 10, no. 112. September, 1934. p. 136-138. Some suggestions for modernizing old houses.

Electricity on the Farm.

Electric soil heating. By J. W. Tomlinson. Hydro-Electric Power Commission of Ontario. Bulletin. v. 21, no. 10. October, 1934. p. 339-351. From power companies' standpoint advantages are: (a) Electric hotbed or propogating bench consumes annually average of 1,000 kilowatt-hours per kilowatt of connected load, which compares favorably with most other electric appliances. (b) Greatest consumption is during early spring months when water power is most plentiful. (c) Experiments show that it is at least 70 per cent night load, and therefore to large extent an off peak load. (d) For most part it is connected to underloaded rural distribution feeders, helping them to stand on their own feet with little or no new capital expenditure for extra line equipment. From grower's standpoint there are many proved advantages, such as: (a) Soil temperature best suited to any particular crop can be maintained by thermostatic control, thereby improving growing conditions as well as insuring against sudden change or extreme weather conditions. (b) Crops may be advanced or retarded at will. (c) Electric hotbed can be used in fall of year as well as spring, since constant temperatures can be maintained as weather grows colder, whereas this is impossible with manure heat since it loses its heat when most needed. (c) Several successive crops can be raised in hotbed in one season without removing soil. (e) Electric hotbed is clean, and free from ammonia fumes. (f) Uniform temperature is maintained throughout entire bed, big improvement over concentrated heat of manure hotbed. (g) Hotbed temperature can be readily lowered as desired, and finally made into virtual cold frame by merely adjusting thermostat, yet heat is always available, and will automatically look after unexpected cold weather.

Electrical ploughing test. Implement and Machinery Review. v. 60, no. 714. October 1, 1934. p. 503-504. Arising out of experiments and tests which were made last year it has been decided by the Societa Toscana Esperimentazioni elettro-agricole, Florence, in conjunction with the Comitato Nazionale per la Elettroagricoltura, to carry out more exhaustive tests into electrical ploughing than have so far been possible in Italy. Object is to try to decide on national scale what is exact scope of electrical outfits in cultivations generally.

Electricity, the universal servant. By F. L. Teuton. Southern Agriculturist. v. 64, no. 10. October, 1934. p. 5.

Electricity in the garden. Rural Electrification and Electro-Farming. v. 10, no. 112. September, 1934. p. 113-115. Article deals with experimental work which has been carried out in connection with use of Neon lighting, and with soil heating cables.

Recent electric lighting development and its farm application. By W. C. Brown. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 395-396.

Wholesome milk. By George W. Kable. Electricity on the Farm. v. 7, no. 11. November, 1934. p. 4-6, 15. How to sterilize utensils to improve quality and price.

Erosion Control.

Demonstrations show farmers how to control erosion. By H. H. Bennett. Fertilizer Review. v. 9, no. 4. September-October, 1934. 2-3, 14. Impressive projects show the country how to combat the insidious enemy that has already destroyed completely a land area equal to Pennsylvania, Massachusetts, and Connecticut combined.

Dust storm serves notice. By John H. Caulfield. Farm and Ranch. v. 53, no. 18. September 15, 1934. p. 2-3, 9.

Erosion control an important factor. By M. H. Kimball. California Cultivator. v. 81, no. 22. October 27, 1934. p. 539, 554.

Erosion control handbook. Prepared for S. E.C. Camps in the Salt Creek watershed, by soil erosion service staff, Zanesville, Ohio. Project no.14. 1934. 69p. Multigraphed. U. S. Department of the Interior. Soil Erosion Service.

Floods and accelerated erosion in northern Utah. By Reed W. Bailey, C. L. Forsling and R. J. Becraft. 1934. 21p. U. S. Department of Agriculture. Miscellaneous Publication no. 196.

Latest results of engineering experiments at the soil erosion experiment stations. By C. E. Ramser. 1934. 11p. Mimeographed. U. S. Department of Agriculture. Bureau of Agricultural Engineering. Address delivered at annual meeting of American Society of Agricultural Engineers at Detroit, Michigan. June 20, 1934.

Lost! An eighty thousand acre farm! Washington Farmer. v. 69, no. 23. November 15, 1934. p. 3-4. There are at least five and probably more, major objectives in nation-wide effort to control erosion. Put them in whatever order of importance you think best: (1) Prevention of moisture loss by water run -off. (2) Control of soil washing that sends 80,000 acres of land down the Columbia in year, and makes your land hard to farm because of ditches and gullies. (3) Control of flood water that covers your lowlands with silt, washes out your bridges, floods your basements, and even drowns your live stock. (4) Restoration of water table, and that's a vital matter. Has the spring that used to run a good stream partially or completely disappeared. Is your well as good as it used to be? Is the neighboring stream that used to run the year around and even provide fishing reduced to winter and spring creek? Is your once subirrigated lowland no longer thus watered? (5) Control of soil drifting in drier, lighter land areas, where top soil is on one side of fence today and on the other tomorrow. And where crop is sometimes actually buried or its roots uncovered.

Erosion Control. (Cont'd)

Results of engineering experiments at Soil Erosion Station. By C. E. Ramser. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 381-386. Table 1. Run-off and soil losses from terraced land at several soil erosion experiment stations. Table 2. Run-off and soil losses for terraces with different grades at several of the soil erosion stations.

Taming Queen creek. Arizona Producer. v. 13, no. 14. October 1, 1934. p. 2. Erosion control work above Superior lessens menace to Salt River Valley farms.

Farm Buildings and Equipment.

Farm building studies in northwest Missouri. By J. C. Wooley. 1934. 43p. Missouri. Agricultural Experiment Station. Research bulletin no.218.

New barns for new business. By T. E. Rochford. Pacific Rural Press. v. 128, no. 13. September 29, 1934. p. 238. In general new dairy barns follow two types: walk through type, and face in or face out type. Estimates on six-stall walk through barn ran between $600 and $800. Face in or face out type are considerably higher because of large dimensions. One estimate given was $1,800 to $2,400.

Plans for rural buildings. By Deane G. Carter. Farm and Ranch. v. 53, no. 18. September 15, 1934. p. 23.

Farm Machinery and Equipment.

Influence of mechanization on agriculture. International Institute of Agriculture. Monthly bulletin of agricultural science and practice. v. 25, no. 10. October, 1934. p. 471-475. Abstract of discussion at the XVI Internation Congress of Agriculture on effects of mechanization in agriculture (chiefly tractors and harvester-thrashers) on costs of production and also on economic and social condition of world agriculture (notably unemployment).

Machinery cost to the farmer. Implement and Tractor Trade Journal. v. 48, no. 24. December 1, 1934. p. 6-7. Failure to eliminate suffisient horses is found most prevalent cause of high power costs, according to farm equipment survey made by University of Missouri. Summary of survey includes following conclusions: Average annual cost of horse labor was $67.31, for average of 750 hours' work. Average hour cost of horse labor was 9 cents, and varied from 20.3 cents to 5.4 cents. These constituted about two-thirds of cost of horse labor. Thirty per cent of farms use both horse and tractor power. Average hourly cost of general purpose two-plow tractors was 57 cents. These tractors did average of 436 hours of work a year. Tractors operated less than 340 hours in general had overhead cost greater than operating cost. Depreciation rate on tractors varied from 8 to 21 per cent, depending upon amount of annual use. Total repairs throughout life of tractor averaged 24 per cent of first cost. Average hourly cost of horse labor on horse powered farms was 13 per cent higher than on horse and tractor powered farms. Horse and tractor power was complimentary and not competitive. On average each tractor replaced four horses.

Farm Machinery and Equipment. (Cont'd)

Small tractor and new machines feature Deere 1935 line. Implement and Tractor Trade Journal. v. 48, no. 24. December 1, 1934. p. 10-15, 18.

Some trends in mechanised farming. I- The Grain Harvest. By H. J. Denham. 1934. 8p. Institute for Research in Agricultural Engineering. University of Oxford. Reprinted from Scottish Journal of Agriculture. v. 17, no. 4. October, 1934.

Farm Mechanics.

Best way to measure hay stacks told. Implement Record. v. 31, no. 11. November, 1934. p. 16. California Agriculturel Experiment Station bulletin explains various rules for measuring volume such as quartermaster, Fryt-Bruhn, outlaw, Fowl and new method called Decimal rule.

Hard-faced cylinder teeth give longer life. By George Sykes. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 394. Reports from Missouri indicated that hard-faced teeth last from six to ten times longer than untreated teeth. Illustration shows difference in wear between two cylinder teeth which ran side by side in same machine for 30 days. Similar results have been obtained in Kansas where hard-faced teeth were installed side by side with plain steel teeth. Use of hard-faced teeth has resulted in greatly reduced number of replacements, better and more efficient job of threshing, and substantial savings in fuel. Another feature is that, when eventually worn, hard-faced teeth can be rebuilt for similar long period of service. This operation can, of course, be repeated indefinitely.

Farmhouses.

Farm homes need attention. American Builder. v. 56, no. 6. June, 1934. p. 56. Summary of five states reported in farm housing survey (Del., Fla., Md., Ky., and Nev.)

Homestead houses. Collection of plans and perspectives issued by the Division of Subsistence Homesteads of the United States Department of the Interior.

Loans for farm home improvement through production credit associations. 1934. 5p. Farm Credit Administration. Circular no. 11.

Fences.

Engineering side of producing woven wire fencing. By J. L. Schuler. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 391-393.

Fertilizers.

Experiments with nitrogen fertilizers on cotton soils. By J. J. Skinner and others. 1934. 28p. U. S. Department of Agriculture. Technical bulletin no. 452.

Interpretation of results of fertilizer tests on sugar cane. By Alexander Gordon. Sugar News. v. 15, no. 3. March, 1934. p. 147-153.

Fertilizers. (Cont'd)

Relation of fertilizers to the control of cotton rot in Texas. By H. V. Jordan, P. R. Dawson, J. J. Skinner and J. H. Hunter. 1934. 76p. U. S. Department of Agriculture. Technical bulletin no. 426.

Soil fertility a problem on every farm. By E. R. Parsons. Western Farm Life. v. 36, no. 10. October 15, 1934. p. 3, 13.

Fire Protection.

Fighting fires in your home. Popular Mechanics. v. 62, no. 6. December, 1934. p. 882-884, 116A, 118A.

Flax.

Flax boom gets under way. By John E. Pickett. Pacific Rural Press. v. 128, no. 14. October 6, 1934. p. 254. Gives items of cost.

Flood Control.

Flood protection schedules to start in Los Angeles foot hills area. Engineering News Record. v. 113, no. 20. November 15, 1934. p. 625. Appropriation of $250,000 for construction of four debris basins and clearing of channels below them in foothill area. Construction of additional protective works by county flood-control district was to depend upon passage of proposed $26,332,500 flood-control bond issue at Nov. 6 election.

Flow of Water and Gases.

Stream flow measurement in Ohio. By C. V. Youngquist. Engineering Experiment Station News, Ohio State University. v. 6, no. 4. October 1934. p. 21-22.

Fuels.

No. 1. cracked furnace oil cited as best fuel for tractors. National Petroleum News. v. 26, no. 47. November 21, 1934. p. 36.

Viscosity and gravity found to show diesel fuel ignition traits. National Petroleum News. v. 26, no. 47. November 21, 1934. p. 30-34.

Heating.

Field tests show accuracy of degree-day method. By Raymond C. Broach. Heating and Ventilating. v. 31, no. 10. October, 1934. p. 42-45. Tests on eight Atlanta homes show dependability of degree-day method of predicting fuel consumption. Steam, hot water, gravity, warm-air and forced circulation warm-air heating plants tested.

Government tests distillate burners. By Arthur H. Sonner. Fuel Oil Journal. v. 13, no. 5. November, 1934. p. 46, 49-50.

Government tests distillate burners. Oil more costly than coal, cheaper than gas. By Arthur H. Sonner. Fuel Oil Journal. v. 13, no. 6.

Heating. (Cont'd)

December, 1934. p. 45-46, 51-52. Continued from November issue.

How to compare cost of heat by degree days. By Arthur Branch. Domestic Engineering. v. 144, no. 5. November, 1935. p. 77-78, 113. Degree day method is based on fact that artificial heat seldom is required, or used, when average temperature for entire day is 65 deg. Fahr. or over.

Hitches.

Mechanics of plow and tractor hitches. By A. W. Clyde. Agricultural Engineering. v. 15, no. 11. November, 1934. p. 388-390. Conclusions: 1. Pull exerted by power unit on its load is not necessarily in direction of travel. Clevis or chain in hitch readily shows this. 2. Every power unit has rather definite center of force, and every plow has center of resistance. If these points are not in same line of travel, pulling force must be angled or must be offset on power unit. Center of resistance for any plow and field conditions can be located approximately in horizontal plane by pulling plow through a chain. 3. Sidedraft is vague term and means little unless user specifies which of three types is meant. This applies both to power unit and to implement. 4. Simple force triangel will show how changing angle of pull affects amount of pull needed. 5. As far as plow only is concerned, ideal direction of pull would be near line of resistance on share and moldboard, in order to keep landside friction as low as possible. 6. Center of resistance of plow can be moved nearer landside by moving resultant landside pressure back. This will reduce angle of pull with wide power unit.

Houses.

Design of the small house. By Roger H. Bullard. American Architect. v. 144, no. 2623. May, 1934. p. 10-22.

Economic information as an aid to home financing. By David L. Wickens. Federal Home Loan Bank Review. v. 1, no. 2. November, 1934. p. 11-16.

FHA moves ahead. By Chester M. Wright. Pencil Points. v. 15, no. 9. September, 1934. p. 459-461.

FHA plan takes hold slowly but steadily. Heating and Ventilating. v. 31, no. 10. October, 1934. p. 30-34, 37, 66, 68. Summary of plans, opinions and observations right from field. They show modernizing from FHA efforts is spotty, but encouraging local campaign plans are ingenious and sponsored by variety of groups. Much soliciting, some contracts. Peak believed far from being reached.

Steel-frame house. Engineering Experiment Station News, Ohio State University. v. 6, no. 4. October, 1934. p. 6-7. Gives analysis of steel frame and cost distribution.

Uncle Sam backs home building. Popular Mechanics. v. 62, no. 6. December, 1934. p. 850-852, 124A.

Houses, Remodeling.

Clear, cold facts on remodeling costs. By John Cushman Fistere. American Home. v. 12, no. 4. September, 1934. p. 198-199.

Houses, Remodeling. (Cont'd)

Home renovation - a spur to durable goods. By Albert L. Deane. Magazine of Wall Street. v. 55, no. 1. October, 1934. p. 22-24, 50. There are about 29,000,000 homes in this country. About 13,000,000 of them are in urgent need of repairs and improvements, and of these latter, some 3,000,000 have deteriorated to such an extent that they will have to be either practically rebuilt or torn down.

Iowa farm houses offer market for plumbing, paint, etc. Domestic Commerce. v. 14, no. 15. November 30, 1934. p. 174. Although paint was item found to be most neglected on Iowa farm houses, they were also generally much in need of repair. Investigators found that one house in eight should be replaced altogether.

Modern style and comfort for the old house. By E. L. Gilbert. American Builder. v. 56, no. 6. June, 1934. p. 42-45.

Hydraulics.

Hydraulics of flood movements in rivers. By Harold A. Thomas. Pittsburgh, Penn., Carnegie Institute of Technology, 1934. 70p.

Hydro-electric Power.

Hydroelectric developments reflect engineering skill. Power Plant Engineering. v. 38, no. 12. December, 1934. p. 580-585. Chart showing relative amounts of power generated by water power and fuels in United States over period of fourteen years.

Insulation.

Metallic heat insulation. By E. R. Queer. Heating and Ventilating. v. 31, no. 10. p. 22-26. Conclusions: 1. Low emissivity materials such as clean metallic foils form excellent low density heat insulators when facing air spaces. 2. Single sheet of bright aluminum foil suspended in air space will produce approximately same insulating effect as 1 inch of board or blanket form of insulation, both having same air space advantage. 3. Air space ($\frac{3}{4}$ inch to 3-5/8 inches in width) bounded by conventional building material on one side and bright aluminum surface on other will have conductance of 0.404 B.t.u. per square foot per hour per °F. at 70° mean temperature. 4. Although crumpled foil has advantage of being easy to apply to surface contour of article to be insulated, it has higher heat transfer coefficient than plane spaced sheets. 5. Since atmospheric dust pollution is prevalent in industrial communities good sealing is required for metal insulation, otherwise dust, soot, and condensation will seriously impair its insulating qualities. In refrigeration work hermetic sealing is required to exclude moisture. 6. Lacquer which has an emissivity of 0.90 if applied in thin enough layer will not seriously affect emissivity of metals for insulation purposes. 7. Full finished tin mill black steel plate makes good metallic heat insulation providing erosion can be avoided.

Metallic wall paper for conserving heat. Heating and Ventilating. v. 31, no. 10. October, 1934. p. 20. Investigated by the Building Research

Insulation. (Cont'd)

Station of the English Institution of Heating and Ventilating Engineers during winter of 1933-34. Experiment showed that use of metallic wall paper resulted in saving of heat amounting to 8%.

Survey of patents on metallic insulation. By Philip Goldberg. Refrigerating Engineering. v. 28, no. 4. October, 1934. p. 195-196, 210.

Thermal insulation of buildings. American Architect. v. 144, no. 2623. May, 1934. p. 89-100. Field of thermal insulation of buildings relates to methods of reducing rate of heat transfer and infiltration by use of insulating materials, weatherstripping, multiple glazing or other means. Visual short-cut method; Rational method; To determine infiltration; To find conductivities of building sections; To find per cent of heat transfer stopped by building insulations; To compute radiation required or saved; To estimate fuel consumption or fuel savings.

Irrigation.

Irrigation and power on the North Platte River. Engineering News Record. v. 113, no. 22. November 29, 1934. p. 698-702. Casper-Alcova irrigation project and Seminoe dam for storage of irrigation water and for power were financed under conditions that did not permit early start of work. Irrigation costs abnormally high. Involved water-rights question now delaying work.

Irrigation of rice fields in the tropics. By R. Dumont. By International Institute of Agriculture. Monthly bulletin of Agricultural Science and Practice. v. 25, no. 10. October, 1934. p. 442-449. Optimum height of water; Irrigation and draining; Disadvantages of prolonged lack of water; Investigation into best system of irrigation; Deprivation of water and submersion; Irrigation with brine water.

List of federal state, and university bulletins on irrigation, drainage, and soil erosion. 1934. 17p. Mimeographed. California. College of Agriculture. Extension Service.

Low cost irrigation for farms. By O. W. Willcox. Facts About Sugar. v. 29, no. 1. January, 1934. p. 5-6. Home made systems run by Diesel or electric power found cost savers by western sugar beet growers.

Studies of the irrigation of pear orchards on heavy soil near Medford, Oreg. By M. R. Lewis, R. A. Work, and W. W. Aldrich. 1934. 34p. U. S. Department of Agriculture. Technical bulletin no. 432.

Vision great irrigation future. Washington Farmer. v. 69, no. 24. November 29, 1934. p. 4. Land classification and soil surveys were regarded by Washington Irrigation Institute in its 23rd annual meeting in Ellensburg November 23 and 24 as necessary before any reclamation project be built, and an enlarged irrigation development for the west was envisaged.

Lumber.

Stumpage and log prices for the calendar year 1933. Compiled by Henry B. Steer. 1934. 71p. U.S. Department of Agriculture. Statistical bulletin no.49.

Meters.

Protection of the upstream foreshore, Mangla regulator, 1931-32. By F.F. Haigh. Proceedings of the Punjab Engineering Congress. 1933. p. 29-49. Paper no. 161.

Miscellaneous.

Quaterly progress report, second quarter 1934. Wisconsin. Bureau of Engineering. 32p. Mimeographed. Quarterly progress report by state chief engineer on condition of state architectural and engineering construction projects, drainage, industrial commission inspections and examinations, power plant design and operation, railroad and utilities valuations and service inspections, sanitary engineering and other engineering work for second quarter ending June 30, 1934.

Science and prosperity. By Karl T. Compton. Science. v. 80, no. 2079. November 2, 1934. p. 387-394. If government financial support should carry with it government control of research programs or research programs or research workers, or if it should lead to political influence or lobbying for distribution of funds, or if any consideration should dictate administration of funds other than inherent worth of project or capabilities of scientist, or if funds should fluctuate considerably in amount with political fortunes of administration or varying ideas of Congress, then government support would probably do more harm than good, for large support by government would tend to discourage support by private philanthropy which has been backbone of our scientific progress in past, and which will doubtless continue unless discouraged. On the other hand, if government support of science were undertaken on adequate scale, and administered with skill and experience that have already been developed in handling of minor funds for acience, such a program of federal support would certainly be sound national investment, would be uplifting intellectual and social influence, and might well mean difference between prosperity and economic catastrophe at no very distant date.

Summary report of Bureau of Standards research on preservation of records. By A. E. Kimberly and B. W. Scribner. 1934. 27p. U.S. Bureau of Standards. Miscellaneous Publication no. 144.

30-hour fallacy. By O. M. Kile. Farm Journal. v. 58, no. 12. December, 1934. p. 99, 113. Why 30-hour week for workmen would harm agriculture and not help labor.

Work of the agricultural experiment station for the year ending June 30, 1933. 1934. 91p. Missouri. Agricultural Experiment Station. Bulletin no. 340. Agricultural Engineering, p. 15-21.

Pipes and Piping.

Bibliography of piping information. Heating, Piping and Air Conditioning. v. 6, no. 11. November, 1934. p. 78-81, back section. Continued from October issue.

Poultry Houses and Equipment.

Houses and equipment for poultry in Florida. By N. R. Mehrhof and Frazier Rogers. 1934. 38p. Florida. Agricultural Extension Service Bulletin no.77.

Power.

Government power projects. Power Plant Engineering. v. 38, no. 11. November, 1934. p. 509-510. Capacities and demand at government power projects. Cost of government projects.

Many power topics to be discussed at annual A. S. M. E. meeting. Power Plant Engineering. v. 38, no. 12. December, 1934. p. 596-601. Results of scientific research are given prominent part in program prepared for annual meeting to be held in New York, December 3-7.

Public Works.

Boulder canyon project a fully-planned development. Engineering News Record. v. 113, no. 22. November 29, 1934. p. 686-691. Started long before New Deal, Boulder Canyon project differs from recent federal undertakings in that power contracts whose revenue is to repay all costs plus interest were made prerequisite to appropriations. Recent developments affect market for power.

Power, navigation and irrigation in two projects on the Columbia Engineering News Record. v. 113, no. 22. November 29, 1934. p. 678-685. Bonneville and Grand Coulee dams being built by federal government. Bonneville for power and navigation and Grand Coulee for power alone, but ultimately as essential elements in great irrigation scheme. Market for power major unanswered question.

Pumps and pumping.

Investigation of the performance of large centrifugal pumps using air as a medium. By Miquel A. Quinones. 1934. 48p. Rensselaer Polytechnic Institute. Engineering and Science Series. Bulletin no. 48.

Replace, don't repair, and you'll save pump money. By Frank A. Kristal. Power. v. 78, no. 12. December, 1934. p. 670-671. New pumps sometimes pay for themselves in less than a year by cutting power costs. Occasionally new pumps costs only a fraction more than thorough repair of old ones.

Reclamation.

To finish our project. By Raymond A. Hill. Arizona Producer. v. 13, no. 16. November 1, 1934. p. 10-11. Why Valley needs new dam on Verde, improvements of old dams, and enlarged canals.

Reforestation.

How and why of the shelterbelt. By Clayton W. Watkins. Nebraska Farmer. v. 76, no. 24. November 24, 1934. p. 11.

Refrigeration.

Analysis of the ejector cycle. By Peter Kalustian. Refrigerating Engineering. v. 28, no. 4. October, 1934. p. 188-190. New method advanced. Use of new refrigerants proposed.

Refrigeration. (Cont'd)

An anemometer for measuring low air velocities. By W. V. Hukill. Refrigerating Engineering. v. 28, no. 4. October, 1934. p. 197.

Domestic electric and gas refrigerators. 1934. 8p. Mimeographed. U.S. National Bureau of Standards. Letter Circular no. 412.

For quality milk give the bacteria a chill. By J. H. Frandson. New England Homestead. v. 107, no. 18. September 1, 1934. p. 3, 7. Table gives effect of temperature on bacterial growth in milk.

Refrigerated van is cooled by fuel that runs motor. Popular Mechanics. v. 62, no. 6. December, 1934. p. 865. New fuel called Petrogas, which is carried as a liquid at pressure of 135 pounds in two cylinders containing about 23 gallons each, is secret of fuel-cooling system. Fuel is converted from liquid under pressure to gas, resulting in heat absorption and refrigeration of truck gas that runs motor at high efficiency. Elimination of crankcase lubricating oil dilution is claimed, resulting in large saving on oil. Fuel is marketed at approximately same price, on performance basis, as regular gasoline, but it has added advantage of serving both as fuel and refrigerant. In tests with two-ton truck, temperatures in truck body were held below fifty degrees while out side temperatures ranged as high as ninety-four degrees.

Refrigeration and ventilation in transportation of lemons. By C. W. Mann and W. C. Cooper. California Citrograph. v. 19, no. 9. July, 1934. p. 234, 257. Apparently few comparative tests have been made that would indicate whether refrigeration or ventilation is desirable, in view of changed conditions of storage. Accordingly, it is thought desirable to present such information as is available bearing on subject from tests conducted by Bureau of Plant Industry since 1930.

Refrigeration men give features of electric milk coolers at dairy show. Electric Refrigeration News. v. 13, no. 8. October 24, 1934. p. 4-5. Speakers presented cost studies on electrically refrigerated milk-cooling equipment, explained operation of common types of milk coolers now in use, and at end of session answered number of questions raised by milk producers.

Research.

Research and readjustment in agriculture: Editorial. Experiment Station Record. v. 71, no. 5. November, 1934. p. 577-579.

Roofs.

How to straighten up a barn roof. Building Material Merchandising Digest. v. 3, no. 9. September, 1934. p. 7. Sketch shows how barn with sagging roof was straightened, four men doing work in half a day.

Sewage and Sewage Disposal.

Government promotes trend toward rural plumbing. Domestic Engineering. v. 144, no. 5. November, 1935. p. 48-49, 147. It is significant that in these homes, which are designed to be low in cost, complete plumbing installations are specified.

Silos.

Temporary silos. Hoard's Dairyman. v. 79, no. 16. August 25, 1934. p. 375.

Trench silos. By R. C. Miller. Bimonthly Bulletin, Ohio Agricultural Experiment Station. v. 19, no. 171. November-December, 1934. p.205-207.

Silt.

Tidal river silt movements from Rotterdam to the sea. By Geert Blaauw. Engineering News Record. v. 113, no. 20. November 15, 1934. p. 623-625. Phenomena of movement and settling of silt, formation of silt bars at and in mouths of tidal rivers, and suggested means of maintaining ship channels there with minimum of dredging.

Soils.

Acitity, antacid buffering, and nutrient content of forest litter in relation to humus and soil. By Max J. Plice. 1934. 32p. Cornell University Agricultural Experiment Station, Memoir no. 166.

Sprays and Spraying Equipment.

New type of spray for fruit trees. By J. Turnbull. Journal of Ministry of Agriculture. v. 41, no. 5. August, 1934. p. 433-435.

Storage Houses.

Buildings for food storage. By Deane G. Carter. Farm and Ranch. v. 53, no. 18. September 15, 1934. p. 10. Gives diagrams.

If you want to keep them all year, here's the way to store sweet potatoes. By L. R. Neel. Southern Agriculturist. v. 64, no. 9. September, 1934. p. 6, 19.

Sugar Beets.

Adjustment for sugar beets. 1934. 6p. U. S. Agricultural Adjustment Administration.

Beet acreage in U. S. reduced. Facts About Sugar. v. 29, no. 7. July, 1934. p. 227. Plantings of 956,000 acres show decrease of 7 per cent from 1933. Crop prospects further reduced by drouth and shortage of irrigation water.

Storage of beet. British Sugar Beet Review. v. 8, no. 3. November, 1934. p. 55-56. Best method of storing is to put beets in one large open pile, six to nine feet high, with level top. Such piles do not need protection, as only very small layer of beet at sides of clamps may be exposed to freezing. Outside cool air enters pile at bottom, and works its way upwards. Temperature is highest in top layer of beet, and for this reason there is no necessity to protect top of pile against frost. Continuous circulation of air will keep piles well ventilated and cool.

Sugar Cane.

Storage of mill cane. By J. I. Lauritzen and R. T. Balch. 1934. 30p. U. S. Department of Agriculture. Technical bulletin no. 449.

Surveying.

Aerial photographic surveys for engineering projects. By Talbert Abrams. Canadian Engineer. v. 67, no. 14. October 2, 1934. p. 8-11. Three aerial surveying methods generally employed for obtaining maps. Contour finder a valuable instrument. Varied uses of aerial survey maps.

First-order triangulation and traverse in Louisiana. (1927 datum). By O. P. Sutherland. 1934. 169p. U.S. Coast and Geodetic Survey. Special publication no. 183.

Topography of high cliff by unique survey method. Engineering News Record. v. 113, no. 20. November 15, 1934. p. 631. By use of target moved over face of cliff by system of ropes and observed by instruments, survey was conducted without need for lowering men in slings over face of cliff.

Temperature.

Studies of the effects of storage temperature on the propagation value of potato tubers. By John D. Hartman. 1934. 39p. Cornell University. Agricultural Experiment Station. Memoir no. 168.

Temperatures of animal shelters. By L. W. Neubauer. University of Minnesota. Agricultural Engineering News Letter, no. 32.

Tennessee Valley Authority.

TVA, an experiment in regional development. Engineering News Record. v. 113, no. 22. November 29, 1934. p. 703-707. Tennessee Valley Authority, established by Congress primarily to put power and nitrate plants at Muscle Shoals into operation and to sell power and fertilizer, takes up development of Tennessee River basin.

Terracing.

Terracing in a land use program. By S. P. Lyle. 1934. 5p. Mimeographed. U. S. Department of Agriculture. Bureau of Agricultural Engineering.

What farmers think of terracing. By Raymond H. Gilkeson. Kansas Farmer. v. 72, no. 19. October 13, 1934, p. 4, 21. Work soon pays for itself while continuing to benefit farm and man who farms it. In moisture-conserving alone, this way of farming is of tremendous advantage to Kansas farmers.

Tires.

Power farming speeds up on air tires. Farm implement News. v. 55, no. 24. November 22, 1934. p. 12, 16, 23. Development which started with low-pressure pneumatics on tractors is taking in whole groups of implements and machines.

Tires. (Cont'd)

Skidding characteristics of automobile tires on roadway surfaces and their relation to highway safety. By R. A. Moyer. 1934. 128p. Iowa. Engineering Experiment Station. Bulletin no. 120.

Tractive Resistance.

Tractive resistance as related to roadway surfaces and motor vehicle operation. By R. G. Paustian. 1934. 64p. Iowa. Engineering Experiment Station. Bulletin no. 119.

Tractors.

Tractor guide saves labor for the farmer. Popular Mechanics. v. 62, no.6. December, 1934. p. 877. Does most of work of steering when plowing, drilling grain, listing for corn or cotton or cultivating listed crops. Rows and furrows are made of uniform width and straighter than is possible when tractor is steered manually. Lever lift enables guide to be raised or lowered easily, rigid push member drives guide wheels from rear, thus eliminating side draft, and raising of guide wheels does not alter course of tractor. There is side hill adjustment, tractor and guide can be operated near fence and there is guide on each side for listing.

Waste Products.

Possible utilization of farm by-products. By W. L. Burlison. Dakota Farmer. v. 54, no. 22. October 27, 1934. p. 443, 455. New uses not now known must be developed to make already important crops more important and more valuable. New crops not now commonly grown may be introduced to supply new demands that are opened up through individual developments. There is an estimated annual waste of about 20,000,000 bushels of cull sweet potatoes, more than 75,000,000 bushels of white potatoes, and 5,000,000 bushesl of apples.

Water, Underground.

Groundwater. Part 1. Fundamental principles governing its physical control. By Willard Gardner, T. R. Collier and Doris Farr. 1934. 40p. Utah. Agricultural Experiment Station. Bulletin no. 252.

Water Supply.

About your water supply. By V. M. Ehlers. Farm and Ranch. v. 53, no. 18. September 15, 1934. p. 20, 23.

Weather.

Is our climate changing? By F. L. Teuton. Southern Agriculturist. v. 64, no. 9. September, 1934. p. 4, 18. Comprehensive study of the weather.

Windmills.

Harness on the winds - means dollars saved. By Harold C. Timm. Iowa Agriculturist. v. 35, no. 1. April, 1934. p. 6-7. Advantages are: No fuel costs, almost no routine attention, and absence of noise, vibration, grease and odors which often accompany installation of engine-driven plant in basement.